

RESEARCH RESOURCES

THE MAGRITEK SPINSOLVE 60 NMR SPECTROMETER



The Magritek Spinsolve 60 NMR spectrometer

(^1H and ^{19}F nuclei including 2D COSY, TOCSY and JRES.)

- Structural elucidation and drug discovery.
- Structural confirmation of both known synthetic drugs and natural products with pharmaceutical effects.
- Impurity profiles e.g composition, metabolic products in bodily fluids; reaction kinetic profiling.
- To observe reaction completeness & uniformity;
- Qualify the relative composition of the structural components;
- Quantify the relative percentage of structural isomers;
- Observe the presence of stereoisomers and determine polymeric tacticity; and determine molecular weight (MW), molecular number (Mn) and polydispersity index (PDI) of polymers.
- To quantify the percentage of biodiesel in composite fuel mixture

The Nicolet iS10Mid-Near Infrared FT-IR spectrometer with ZnSe ATR Crystal

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Applications:

- FTIR spectra reveal the composition of solids, liquids, and gases. The most common use is in the identification of unknown materials and confirmation of production materials (incoming or outgoing).
- Microanalysis of small sections of materials to identify contaminants
- Analysis of thin films and coatings
- monitoring air quality, testing water quality, and analyzing soil
- Rapid determination of the *trans* fat content of manufactured food products
- Textile identification: fibers, coatings, and residues



High performance liquid chromatography (HPLC) Shimadzu LC-20A with UV-VIS detector



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Applications:

- Clinical diagnosis of diseases, disorders.
- In scientific research for discovery. In pharmaceutical labs for analysis.
- In food industry for quality control.
- For standards control by government.
- For separation of similar molecules.

BioLogic SP-200 Potentiostat

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Applications: Battery & Intercalation Compounds, Battery Cycling, Capacitor and supercapacitor, Corrosion & Coatings, EIS, Electrochroms, Fuel Cell & Biofuel Cell, Fundamental Electrochemistry, Liquid conductivity, Sensors,

RESEARCH FACILITIES



SPX-150 BIOCHEMICAL CULTURING BOX



SPX-150 Biochemical Culturing Box

- Bacteria, fungi, microorganisms, tissue cell culture preservation
- Water quality analysis and bod tests for breeding test
- Plant cultivation. Biological, genetic engineering, medical, health and epidemic prevention, environmental protection, agriculture, forestry and animal husbandry industry research

RESEARCH FACILITIES

SINGLE BEAM VISIBLE SPECTROPHOTOMETER

Single Beam Visible Spectrophotometer

- For the quantitative determination of different analytes,
- Structure elucidation of organic compounds.
- Detection of impurities
- Dissociation constants of acids and bases.



KRÜSS Manual Polarimeter P1000-LED

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- Samples that display specific rotations that can be calculated for purity with a polarimeter include: Steroids, Diuretics, Antibiotics, Narcotics, Vitamins, Analgesics, Amino acids, Essential oils, Polymers, Starches.
- for determining quality of both juice from sugar cane and the refined sucrose



RESEARCH FACILITIES

SHIMADZU UV-1800 UV/VISIBLE SCANNING SPECTROPHOTOMETER

Shimadzu UV-1800 UV/Visible Scanning Spectrophotometer

- For the quantitative determination of different analytes, such as transition metal ions, highly conjugated organic compounds, and biological macromolecules.
- For quantitative analyses, kinetics, wavelength scanning, and DNA and protein analysis.
- Structure elucidation of organic compounds.
- Detection of impurities
- Dissociation constants of acids and bases.
- Quantitative analysis of pharmaceutical substances
- Molecular weight determination



CEM DISCOVER MICROWAVE



CEM Discover Microwave

- Acid digestion
- Solvent extraction
- Moisture/solids analysis
- Fat and protein analysis
- Ash analysis
- Compositional testing of food products,
- Peptide synthesis,
- Organic and inorganic synthesis.

